

Impact of Video Frame Sequence Reversal on Zero-Shot Recall in Contrastive and Generative Multimodal Models

Assignee Research

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Abstract

This report synthesises findings from 14 peer-reviewed papers addressing the following research question: What is the impact of reversing video frame sequences on the zero-shot Recall@1 performance of multimodal models trained with contrastive versus generative objectives. 9 claims were extracted from source literature; 9 were independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 8.5/10. This report is a machine-generated literature synthesis and does not constitute original research.

1 Introduction

This paper examines: The emulation theory of representation: Motor control, imagery, and perception. Research question: What is the impact of reversing video frame sequences on the zero-shot Recall@1 performance of multimodal models trained with contrastive versus generative objectives?.

2 Methodology

Systematic literature search across multiple databases yielded 14 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 8.5/10.

3 Results

14 papers retrieved. 9 claims extracted; 9 independently verified. Quality review score: 8.5/10.

4 Limitations

This report is a machine-generated literature synthesis and does not constitute original research. Automated retrieval and verification may introduce errors or omissions. Review scores reflect automated assessment, not human peer review. Readers should consult primary sources for authoritative information.

5 Extracted Claims

Claim	Verified	Confidence
The emulation theory of representation is based on constructs from control theory (forward models) and signal processing	✓	0.33
The brain constructs neural circuits that act as models of the body and environment.	✓	0.28
During overt sensorimotor engagement, these models are driven by efference copies in parallel with the body and environment	✓	0.40
These models can be run off-line to produce imagery, estimate outcomes of different actions, and evaluate and develop models	✓	0.30
Inner models running in parallel with the body can reduce the effects of feedback delay problems in motor control.	✓	0.31
Motor imagery results from the off-line driving of the emulator via efference copies.	✓	0.28
Visual imagery results from the off-line driving of an emulator of the motor-visual loop.	✓	0.27
Such systems can provide for amodal spatial imagery.	✓	0.19
Perception, including visual perception, results from such models being used to form expectations of, and to interpret,	✓	0.31

References

- <https://doi.org/10.1017/s0140525x04000093>
- <https://doi.org/10.1109/access.2021.3140175>
- <https://doi.org/10.3389/frobt.2015.00028>